Amendments To The Claims:

1. **(Original)** A method of logging a geological formation, comprising the steps of

(i) pulsing a low burst rate neutron generator so as to generate a series of neutron bursts that irradiate the formation;

(ii) operating a detector of gamma or neutron radiation, that is so located as to detect gamma or neutron radiation generated by the capture of neutrons in the formation to generate a current output that is indicative of gamma radiation detection; and

(iii) integrating the current output of the gamma radiation detector to generate an analogue waveform that is characteristic of the rate of decay of gamma radiation, and hence of neutron capture rate, during the period of the decay.

2. **(Original)** A method according to Claim 1 including the further steps of

(iv) converting the analogue waveform resulting from step (iii) to digital form.

3. **(Original)** A method according to Claim 1 or Claim 2 wherein the step (ii) of operating a detector of gamma or neutron radiation includes sampling the gamma or neutron radiation levels during the gating interval.

4. **(Currently Amended)** A method according to any <u>one of</u> preceding ~~claim~~ <u>claims 1-2</u> including the step of:

(v) repeating the steps (i) and (ii) for a plurality of successive neutron bursts.

5. **(Currently Amended)** A method according to any <u>one of</u> preceding ~~claim~~ <u>claims 1-2</u> including the steps of:

(v) measuring the background gamma radiation level before each neutron generator burst occurs.

6. **(Original)** A method according to Claim 5 including the step of:

(vi) subtracting each measured background radiation value resulting from step (v) from the gamma radiation level measured by the detector of gamma radiation in the next succeeding burst and decay period.

7. **(Currently Amended)** A method according to any one of preceding ~~claim~~ claims 1-2 wherein the neutron generator is pulsed between approximately ten and fifty times per second.

8. **(Cancelled)**

9. **(Currently Amended)** Use of a low burst rate, pulsed target neutron generator, a detector of gamma or neutron radiation, and an integrator, in a method according to any one of preceding ~~claim~~ claims 1-2.

10. **(Original)** Use according to Claim 9 when dependant from Claim 2 including use of an analogue to digital convertor.

11. **(Cancelled)**

12. **(Currently Amended)** Use or a method according to any one of preceding ~~claim~~ claims 1-2 characterised in that the low burst rate neutron generator, the detector of gamma or neutron radiation and the integrator are parts of or secured to a logging tool.